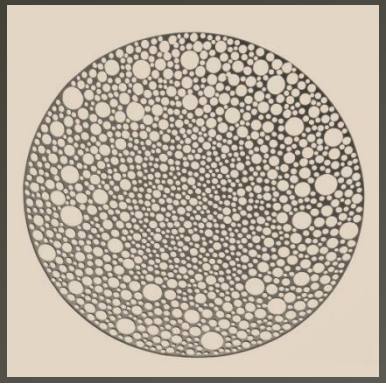
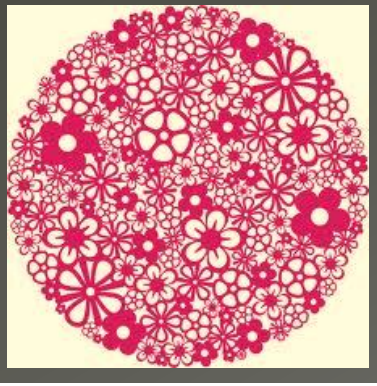
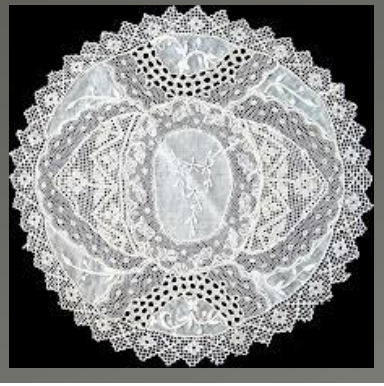





LACE: PDS4 LAbel Creation and Editing Tool

PDS Management Council Meeting – April 3, 2013

Rich Keller **Mark Rose** **Pegah Sarram**

PDS User-Centered Design Group

NASA Ames Research Center

Why a Label/Template creation tool?

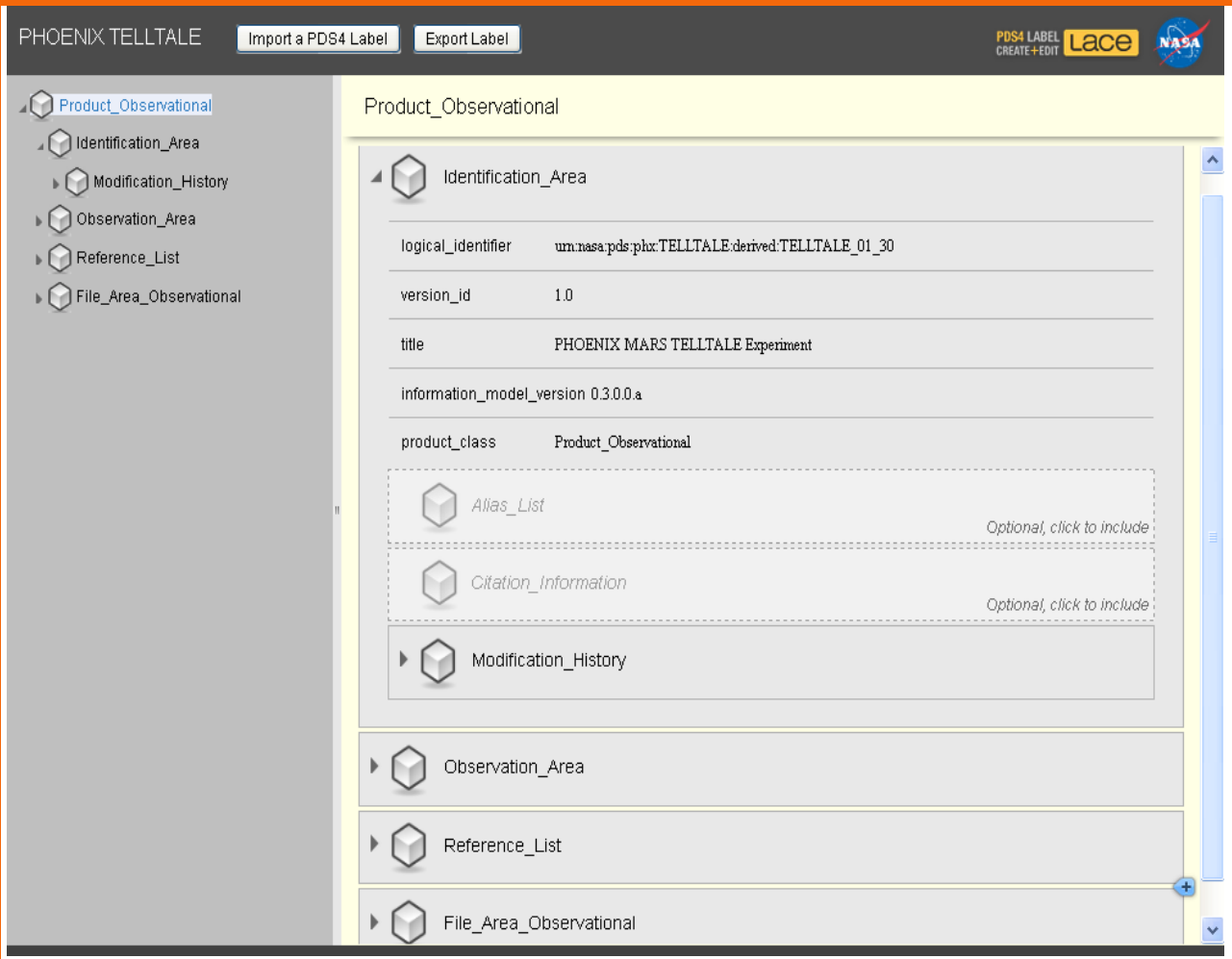
Goal: Facilitate PDS4 transition with a user-centered tool that eases label and template preparation

- Premise: While XML may be a good language for representing metadata, it is a difficult language for most people to read and write.
- XML is verbose and its syntax masks the important semantic content that is being conveyed
- Authoring XML using text editors or even specialized XML editors (e.g., Oxygen) is not for the faint of heart

Complexity: Raw XML vs. LACE

```
<?xml version="1.0" encoding="UTF-8"?>
<?xml-model
href="http://pds.nasa.gov/pds4/schema/released/pds/v03/PDS4_PDS_030
0a.sch" ?>
<Product_Observational
  xmlns="http://pds.nasa.gov/pds4/pds/v03"
  xmlns:pds="http://pds.nasa.gov/pds4/pds/v03"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
  <Identification_Area>
    <logical_identifier>
      urn:nasa:pds:phx:TELLTALE:derived:TELLTALE_01_30
    </logical_identifier>
    <version_id>1.0</version_id>
    <title>PHOENIX MARS TELLTALE Experiment</title>
    <information_model_version>0.3.0.0.a</information_model_version>
    <product_class>Product_Observational</product_class>
    <Modification_History>
      <Modification_Detail>
        <modification_date>2012-12-17</modification_date>
        <version_id>1.0</version_id>
        <description>This label was modified to convert to
        PDS4.</description>
      </Modification_Detail>
    </Modification_History>
  </Identification_Area>
  <Observation_Area>
    <Time_Coordinates>
      <start_date_time
      nilReason="inapplicable">2008-05-29T00:51:54.507</start_date_
      time>
```

XML



LACE Interface

Features

- **No XML authoring**: Allows user to focus on entering metadata content rather than XML syntax
- **Totally web browser-based**: No software to install
- **Schema compliance support:**
  - Alerts user about required elements and fields
  - Enforces schema constraints on field values
- **Auto-generated XML**: LACE generates XML when label or template is exported
- **Reduces need for separate XML validation**: LACE will only generate valid PDS4 XML, and will run against Schematron rules
- **Low maintenance:** LACE operation is driven by the PDS4 XML schema and Schematron rules
  - Little or no modification to LACE code is required for new PDS4 releases
- **Looking forward**: Support node/local Data Dictionary creation

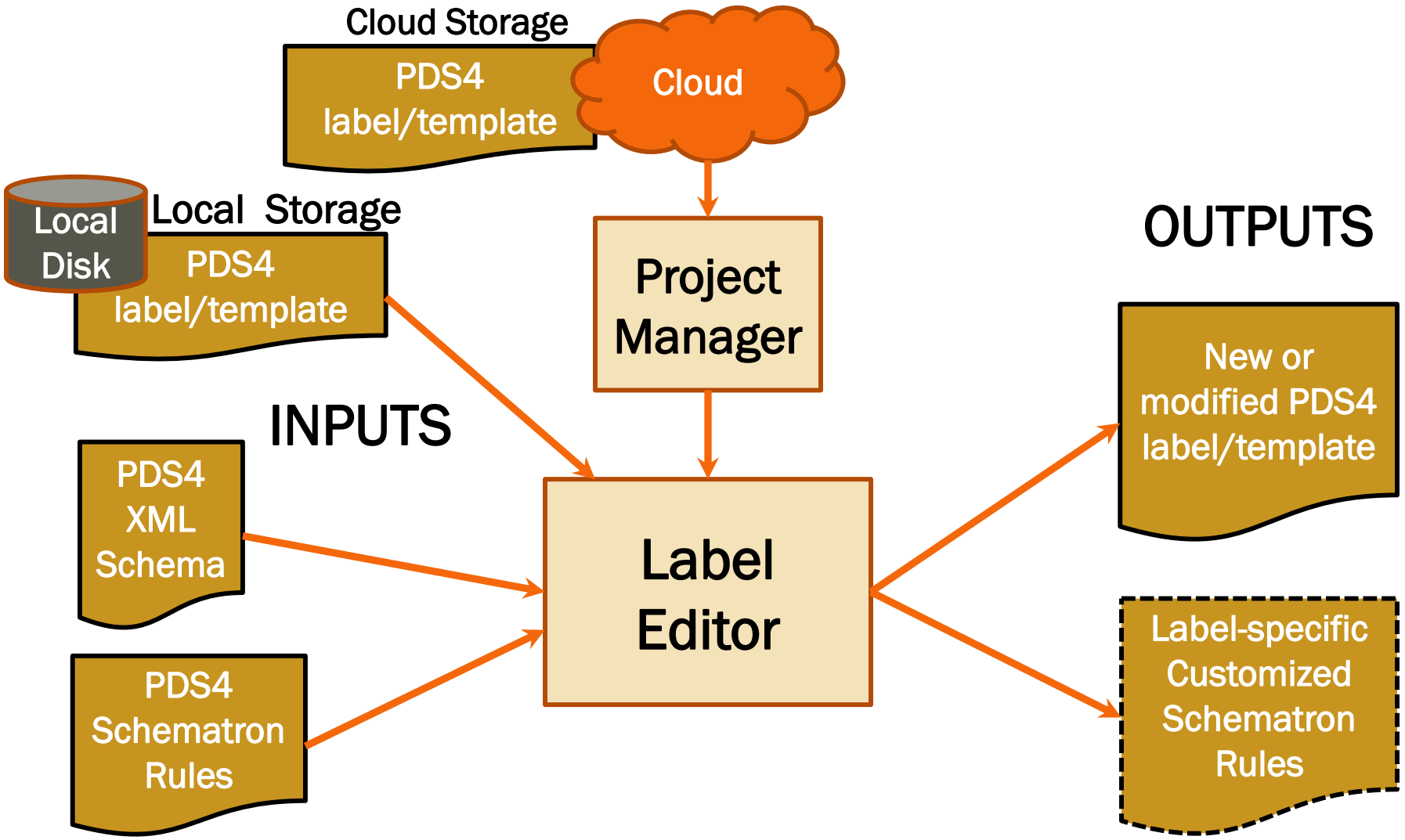
Supports Template Constraint Authoring

- LACE allows the template author to define constraints on XML values
  - Strings:
    - matching an enumerated list
    - matching a regular expression
  - Numbers
    - greater than or less than a value
    - within a specified range
- Constraints are output as template-specific Schematron rules to be used:
  - within a mission data production pipeline
  - within the PDS4 data ingest process

LACE Components

- **Project Manager:** Manage labels/templates
  - Organizes your labels into ‘projects’
  - Saves labels in the cloud
  - Enables sharing labels with colleagues
- **Label Editor:** Create & modify labels/templates
  - Upload label files from local disk or from Project Manager
  - Save labels on local disk or in Project Manger
  - Export labels in PDS4-compatible XML
  - Export customized Schematron rules

LACE Inputs/Outputs



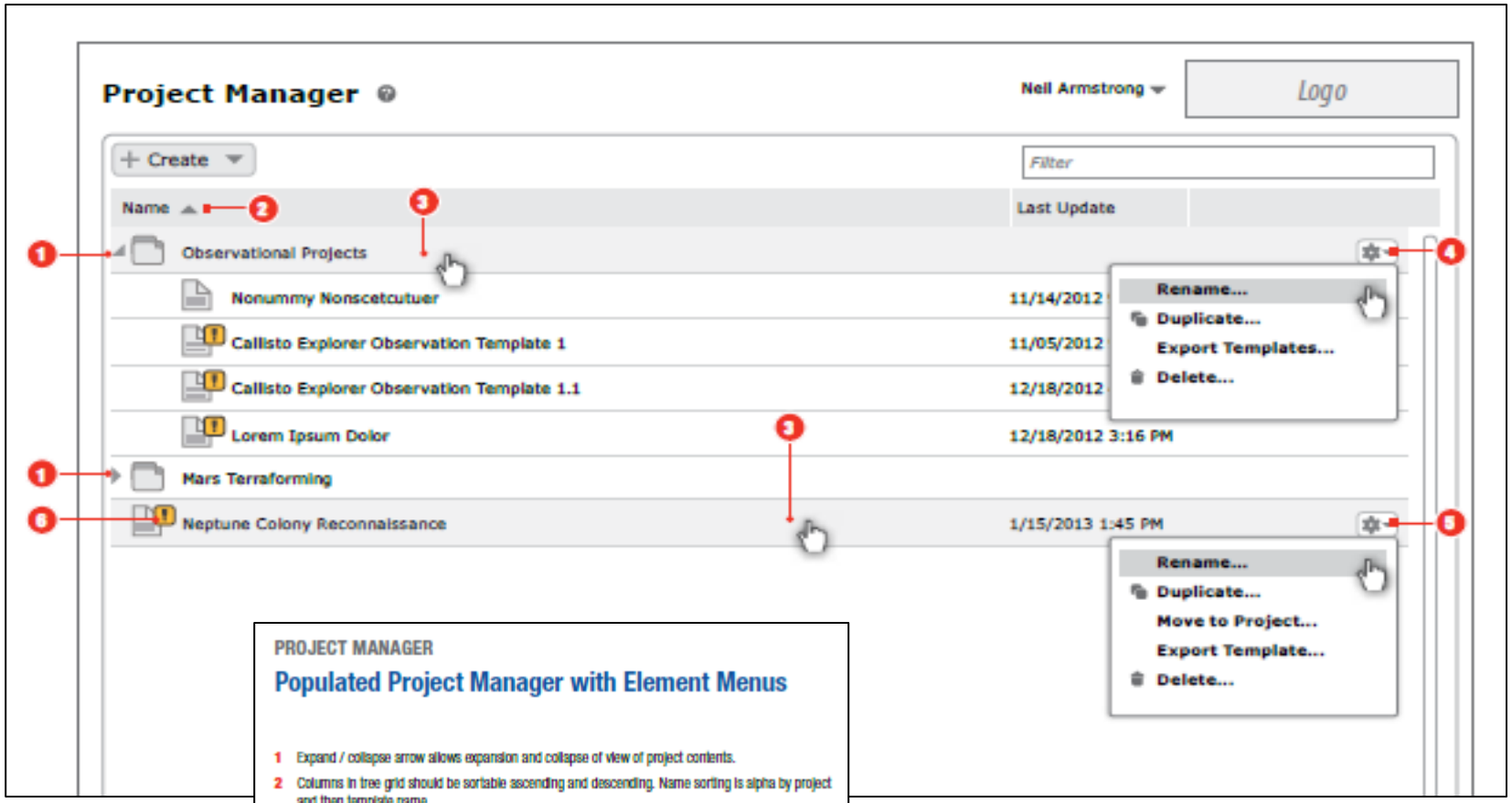
LACE Status

- Design:
  - ~75% complete
- Implementation:
  - Label Editor: underway
  - Project Manager: FY14 Work
- Schedule:
  - Initial Label Editor demo: today
  - Complete alpha version ready for test: 6/15/13
  - Release of beta version for comment:7/31/13
  - First official release: 9/28/13
- Seeking initial input from PDS MC

Demo


PHOENIX TELLTALE
Import a PDS4 Label
Export Label
PDS4 LABEL CREATE+EDIT
Lace
Product_Observational
Identification_Area
Observation_Area
Reference_List
File_Area_Observational
Product_Observational
Identification_Area
Observation_Area
Reference_List
File_Area_Observational
LACE

Project Manager



PROJECT MANAGER

Populated Project Manager with Element Menus

1. Expand / collapse arrow allows expansion and collapse of view of project contents.
2. Columns in tree grid should be sortable ascending and descending. Name sorting is alpha by project and then template name.
3. Rollover on treeview row displays Modification button. Single-clicking a project row should expand or collapse it. Single-clicking a template row should open that template in the editor interface. Ideally, templates can be drag and dropped into or out of projects.
4. Modification button for a project allows the actions as illustrated.
5. Modification button for a template allows the actions as illustrated.
6. If a template is invalid, display as shown.